

DISCUSSION PAPER

SUBJECT

Biological and Aquatic Community Integrity Assessments for Water Level Fluctuations in Impoundments for Water Quality Certifications

SITUATION

Many impoundments have biological aquatic communities that exist in their present state as a result of the impounded water level. The impoundments are surface waters under RSA 485-A:2, XIV and Env-Wq 1702.46, and subject to water quality standards for biological and aquatic community integrity (Env-Wq 1703.19). Therefore, a water withdrawal or release from an impoundment that will affect the impounded water level has the potential to violate water quality standards.

For new or modified water withdrawals or releases which satisfy the provisions of RSA 485-A:12, III or IV, DES is required to certify that the proposed activity will not violate water quality standards. This includes criteria for all designated uses: biological and aquatic community integrity; wildlife habitat; drinking water supply; instream flows; and others, as well as antidegradation. The purpose of this guidance is to develop a logical sequence for addressing these concerns to facilitate review and ensure that the regulations are addressed. The guidance also establishes *de minimus* thresholds for water level fluctuations, ramping rates, frequency, and instream flow to simplify evaluation of small projects.

REGULATORY AUTHORITY

DES is required to issue or deny Water Quality Certification for proposed water withdrawals and hydrologic modifications by dams per RSA 485-A:12, III and IV. In order to issue a Water Quality Certification, DES must determine that all water quality standards will be attained during both the construction and operation of the proposed activity. The pertinent sections from RSA 485-A:12 are:

III. No activity, including construction and operation of facilities, that requires certification under section 401 of the Clean Water Act and that may result in a discharge, as that term is applied under section 401 of the Clean Water Act, to surface waters of the state may commence unless the department certifies that any such discharge complies with the state surface water quality standards applicable to the classification for the receiving surface water body. The department shall provide its response to a request for certification to the federal agency or authority responsible for issuing the license, permit, or registration that requires the certification under section 401 of the Clean Water Act. Certification shall include any conditions on, modifications to, or monitoring of the proposed activity necessary to provide assurance that the proposed discharge complies with applicable surface water quality standards. The department may enforce compliance with any such conditions, modifications, or monitoring requirements as provided in RSA

485-A:22.

IV. No activity that involves surface water withdrawal or diversion of surface water that requires registration under RSA 488:3, that does not otherwise require the certification required under paragraph III, and which was not in active operation as of the effective date of this paragraph, may commence unless the department certifies that the surface water withdrawal or diversion of surface water complies with state surface water quality standards applicable to the classification for the surface water body. The certification shall include any conditions on, modifications to, or monitoring of the proposed activity necessary to provide reasonable assurance that the proposed activity complies with applicable surface water quality standards. The department may enforce compliance with any such conditions, modifications, or monitoring requirements as provided in RSA 485-A:22.

The Water Quality Standards, including designated uses, criteria to support the uses, and antidegradation provisions, are applicable to withdrawals and hydrologic modifications by dams per Env-Wq 1701.02, Env-Wq 1703.01(d), and 1708.02.

Env-Wq 1701.02 Applicability.

(b) These rules shall apply to any person who causes point or nonpoint source discharge(s) of pollutants to surface waters, or who undertakes hydrologic modifications, such as dam construction or water withdrawals, or who undertakes any other activity that affects the beneficial uses or the level of water quality of surface waters.

Env-Wq 1703.01 Water Use Classifications.

(d) Unless the flows are caused by naturally occurring conditions, surface water quantity shall be maintained at levels adequate to protect existing and designated uses.

Env-Wq 1708.02 Applicability. Antidegradation shall apply to:

- (c) Any increase in flow alteration over an existing alteration; and
- (d) Any hydrologic modifications, such as dam construction and water withdrawals.

The water quality criteria pertaining to biological and aquatic community integrity in surface waters is Env-Wq 1703.19:

- (a) The surface waters shall support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.
- (b) Differences from naturally occurring conditions shall be limited to non-detrimental differences in community structure and function.

APPROACH

The following steps outline the sequence that DES will use for certifying the water quality standard for biological and aquatic community integrity with respect to water withdrawals or releases from impoundments. Each step is characterized by “yes/no” questions that need to be answered. Where possible, the law or regulation pertaining to the question is listed in square brackets (e.g., “[RSA 485-A:12]”). This guidance only applies to the water quality criteria for biological and aquatic community integrity. All other water quality criteria must also be met for the proposed activity (see Step 4).

Step 1: Applicability of Guidance to an Impoundment

- Is a new or modified Water Quality Certification required for dam operation or water withdrawal from an impoundment? [RSA 485-A:12, III and IV]

If this question is affirmatively answered, this policy is applicable. Move on to next step.

If this question is negatively answered, this policy is not applicable.

Step 2: Identification of Potential to Stress Sensitive Biological Resources

- Has the applicant mapped observations of rare, threatened, or endangered (RTE) species in the Natural Heritage Bureau database within 1 mile of the impoundment shoreline? [Env-Wq 1708.09(d)(6)]
- Have the NH Fish and Game Department and US Fish and Wildlife Service been consulted regarding the presence of RTE species, nesting loons, fall or spring spawning fish, or other specialized habitat requirements in the impoundment? [Env-Wq 1708.09(d)(6)]
- Have all concerns from the NH Fish and Game Department and US Fish and Wildlife Service been addressed? [Env-Wq 1708.09(d)(6)]

If all questions are affirmatively answered, move on to next step.

If any questions are negatively answered, the applicant should work with the NH Fish and Game Department and US Fish and Wildlife Service to address all concerns. If mutual agreement between the applicant, the NH Fish and Game Department, and the US Fish and Wildlife Service cannot be reached, DES will not use the *de minimus* thresholds in Step 6 to evaluate the proposal. DES will require an impoundment-specific study as described in Step 7. Move on to next step.

Step 3: Identification of Potential to Stress Sensitive Recreational Uses or Water Supply Uses

- Has the NH Department of Resources and Economic Development been consulted regarding sensitive recreational uses and have all their concerns been addressed? [Env-Wq 1708.09(d)(7)]
- Has the DES Drinking Water and Groundwater Bureau been consulted regarding sensitive water supply uses and have all their concerns been addressed? [Env-Wq 1708.09(d)(7)]

If all questions are affirmatively answered, move on to next step.

If any questions are negatively answered, the applicant should work with the NH Department of Resources and Economic Development and DES Drinking Water and Groundwater Bureau to address all concerns. If mutual agreement between the applicant, the NH Department of Resources and Economic Development, and the DES Drinking Water and Groundwater Bureau cannot be reached, DES will not use the *de minimus* thresholds in Step 6 to evaluate the proposal. DES will require an impoundment-specific study as described in Step 7. Move on to next step.

Step 4: Attainment of Water Quality Criteria

- Has the applicant demonstrated to DES that all water quality criteria besides Env-Wq 1703.19 for Biological and Aquatic Community Integrity will be in compliance or otherwise addressed? [Env-Wq 1701.02, Env-Wq 1703.01(d), 1703.03 through 1703.32]
- Has the applicant demonstrated to DES that the impacts from the proposed withdrawal or release for all water quality parameters besides Env-Wq 1703.19 Biological and Aquatic Community Integrity will be “insignificant” in terms of antidegradation provisions? [Env-Wq 1708.09]

If all questions are affirmatively answered, move on to next step.

If any questions are negatively answered, the applicant should work with DES to address all concerns.

Step 5: Water Management Plans for Protection of Instream Flow on Designated Rivers

- Is the withdrawal or release necessary to comply with a water management plan for protected instream flows established per Env-Wq 1905 and adopted per Env-Wq 1906?

If this question is affirmatively answered, the proposed withdrawal or release will be considered to attain Env-Wq 1703.19 for Biological and Aquatic Community Integrity and be deemed “insignificant” relative to antidegradation provisions (Env-Wq 1708.09). Water management plans established per Env-Wq 1905 and adopted per Env-Wq 1906 require a rigorous, stakeholder-driven process to balance water needs to support and maintain biological and aquatic community integrity in the impoundment and the downstream reaches. Attainment of the water quality standards for all other parameters should have been confirmed in Step 4.

If this question is negatively answered, move on to next step.

Step 6: *De Minimus* Thresholds for Determining Compliance with Water Quality Criteria for Biological Aquatic Community Integrity and Significance with Respect to Antidegradation Provisions

- Magnitude: Will the withdrawal or release, in conjunction with other withdrawals, releases, and natural variability, result in less than or equal to one foot change in water level between April 1 and July 31 and less than or equal to two foot change in water level between August 1 and March 31? Water level changes are measured relative to normal high water (“full pool”).
- Rate of Change: Will the withdrawal or release have a ramping rate that will allow freshwater mussels or an equivalent organism to migrate with the changing water levels or less than 0.1 foot per day?
- Frequency: Will the withdrawal or release occur fewer than four times per year?
[Discussion topics regarding frequency: What are the primary impacts from frequent

water level changes (e.g., mercury methylation, habitat)? Does the frequency matter if the *de minimus* thresholds for magnitude are met? What counts as one “cycle” – a full drawdown or any change in water level?]

- Flow: Will the withdrawal or release result in flow from the impoundment to the downstream reach that is greater than or equal to 0.5 cubic feet per second per square mile of drainage area (cfs/m) during refill and less than or equal to 4 cfs/m during drawdown?

If all questions are affirmatively answered, the proposed withdrawal or release will be considered to attain Env-Wq 1703.19 for Biological and Aquatic Community Integrity and be deemed “insignificant” relative to antidegradation provisions (Env-Wq 1708.09).

If any of the questions are negatively answered, move on to next step.

Step 7: Impoundment-Specific Evaluation

In order to demonstrate that the proposed withdrawal or release will meet all water quality standards, the applicant must provide data and make an assessment of the impoundment per Env-Wq 1708.03 and 1708.08. DES will use these data and assessment to answer the following questions:

- Will the proposed withdrawal or release support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region? [Env-Wq 1703.19]
- Should the proposed withdrawal or release be deemed “insignificant” with respect to antidegradation provisions? [Env-Wq 1708.09(a) and 1708.09(d)]

If all of the questions are affirmatively answered, the proposed withdrawal or release will be considered to attain Env-Wq 1703.19 for Biological and Aquatic Community Integrity and be deemed “insignificant” relative to antidegradation provisions (Env-Wq 1708.09).

If any of the questions are negatively answered, move on to next step.

Step 8: Demonstration of Economic or Social Development or Use Attainability Analysis and Public Participation

- If the proposed withdrawal or release will attain Env-Wq 1703.19 for Biological and Aquatic Community Integrity but is deemed “significant” relative to antidegradation provisions (Env-Wq 1708.09), the applicant shall submit documentation demonstrating that the withdrawal or release will provide an important economic or social development and that lowering of water quality is necessary to accommodate the development. If DES makes a preliminary decision to approve the applicant’s request, DES shall provide opportunity for public comment on the preliminary decision per Env-Wq 1708.11. DES will then make a final decision to allow or deny the proposed impact on water quality.
- If the proposed withdrawal or release will not attain Env-Wq 1703.19 for Biological and Aquatic Community Integrity, the withdrawal or release shall only be approved by DES after completing a Use Attainability Analysis per Env-Wq 1709.01 and 40 CFR 131.10(g).